Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed

1.1. Name of the Data, data collection Project, or data-producing Program:

2010 USFS Lidar: Malheur National Forest (LC West), OR

1.2. Summary description of the data:

No metadata record for this data set was provided to the NOAA Office for Coastal Management (OCM). This record was created with information from the data report. A link to the data report is provided in the URL section of this metadata record.

LiDAR data acquisition occurred between July 27 and August 19, 2010. Aero-Graphics acquired LiDAR data over a portion of the Malheur National Forest called LC West. The acquisition covers roughly 323 square miles (206,724 acres).

In addition to these lidar point data, the bare earth Digital Elevation Models (DEM) created from the lidar point data are also available. These data are available for custom download at the link provided in the URL section of this metadata record.

1.3. Is this a one-time data collection, or an ongoing series of measurements?

One-time data collection

1.4. Actual or planned temporal coverage of the data:

2010-07-27 to 2010-08-19

1.5. Actual or planned geographic coverage of the data:

W: -119.356389, E: -118.593775, N: 44.811877, S: 44.487798
Malheur National Forest - LC West project area.

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
Point Cloud (Digital)

1.7. Data collection method(s):

(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

1.8.1. If data are from another observing system, please specify:

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name:
NOAA Office for Coastal Management (NOAA/OCM)

2.2. Title:
Metadata Contact

2.3. Affiliation or facility:
NOAA Office for Coastal Management (NOAA/OCM)

2.4. E-mail address:
coastal.info@noaa.gov

2.5. Phone number:
(843) 740-1202

3. Responsible Party for Data Management
Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:

3.2. Title:
Data Steward

4. Resources
Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?
Yes

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):
Unknown

5. Data Lineage and Quality
NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

(describe or provide URL of description):

Lineage Statement:

The Aero-Graphics,Inc. collected Light Detection and Ranging (LIDAR) data in the Malheur National Forest - LC West project area for the USDA Forest Service. NOAA OCM received the data from DOGAMI and ingested it into the Digital Coast Data Access Viewer for distribution.

Process Steps:

- 2010-08-19 00:00:00 - Acquisition. LiDAR data acquisition occurred between July 27 and August 19, 2010. LiDAR acquisition of LC West was performed with an Optech ALTM Orion sensor. Aero-Graphics flew at an average altitude of 3280 ft AGL (above ground level) and made appropriate adjustments to compensate for topographic relief. The PRF (pulse rate frequency) used for collection was 100 kHz, scan frequency of 70 Hz, and scan angle of +/- 11° from the nadir position (full scan angle 22°). The ALTM Orion features roll compensation that adjusts the mirror to maintain the full scan angle integrity in relation to nadir, even when less than perfect weather conditions push the sensor off nadir. Acquisition was performed with a 50% side lap and yielded >12.5 points per square meter throughout the project boundary. The Optech ALTM Orion is capable of receiving up to four range measurements, including 1st, 2nd, 3rd, and last returns for every pulse sent from the system.
- LiDAR Processing Workflow and Software a. Absolute Sensor Calibration. The absolute sensor calibration is defined as the difference in roll, pitch, heading, and scale between the raw laser point cloud from the sensor and surveyed control points on the ground over two separate sites. Software: Dashmap 4.1801; ACalib 1.3.5.7. b. Kinematic Air Point Processing. Differentially corrected the 1-second airborne GPS positions with ground base stations; combined and refined the GPS positions with 1/200-second IMU (roll-pitch-yaw) data through development of a smoothed best estimate of trajectory (SBET). Software: Applanix POSPac 5.3.3664.28463. c. Raw LiDAR Point Processing. Combined SBET with raw LiDAR range data; solved real-world position for each laser point; produced point cloud data by flight strip in ASPRS v1.1 .LAS format; output in WGS84 UTM Ellipsoid Heights. Software: LiDAR Mapping Suite 1.0. d. Relative Calibration. Tested relative accuracy; performed relative calibration by correcting for roll, pitch, heading, and scale discrepancies between adjacent flightlines. Results presented in Section 4.1. Software: LiDAR Mapping Suite 1.0. e. Tiling & Long/Short Filtering. Cut data into project-specified tiles and filtered out grossly long and short returns. Software: TerraScan 10.011. f. Classification. Ran classification algorithms on points in each tile; separated into ground, unclassified, high outliers and low outliers; revisited areas not completely classified automatically and manually corrected them. Software: TerraScan 10.011. g. Absolute Accuracy Assessment. Performed comparative tests that showed Z-differences between each static survey point and the laser point surface. Results presented in Section 4.2. Software: TerraScan 10.001. h. Datum Transformation. Transformed all .LAS tiles from WGS84 UTM 11N Ellipsoid Heights into NAD83 UTM 11N, adjusted for orthometric heights on

NAVD88 (Geoid03). Integrity of the .LAS file format was maintained throughout the process. Software: Blue Marble Desktop 2.1. i. DEM Creation. Generated 2-meter first-return DEMs and 1-meter ground surface DEMs in ESRI Raster Grid format, tiled according to project specifications. Software: TerraScan 10.011. j. Intensity Image Creation. Generated 1-meter pixel intensity images in GeoTIFF format, tiled according to project specifications. Software: TerraScan 10.011.
- 2020-03-13 00:00:00 - The NOAA Office for Coastal Management (OCM) received 528 lidar point cloud files in laz format from DOGAMI. The files contained lidar elevation and intensity measurements. The data were in UTM Zone 11 NAD83, meters, coordinates and NAVD88 (Geoid03) elevations in meters. The data were classified as: 1-Unclassified, 2-Ground. OCM processed all classifications of points to the Digital Coast Data Access Viewer (DAV). Classes available on the DAV are: 1, 2. OCM performed the following processing on the data for Digital Coast storage and provisioning purposes: 1. An internal OCM script was run to check the number of points by classification and by flight ID and the gps and intensity ranges. 2. Internal OCM scripts were run on the laz files to convert from orthometric (NAVD88) elevations to ellipsoid elevations using the Geoid03 model, to convert from UTM Zone 11 NAD83 coordinates in meters, to geographic coordinates, to assign the geokeys, to sort the data by gps time, and zip the data to database and to http. (Citation: processed lidar data)

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:
- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 5.2. Quality control procedures employed
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.4. Approximate delay between data collection and dissemination
- 8.3. Approximate delay between data collection and submission to an archive facility

6.2. Name of organization or facility providing metadata hosting:
NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:
https://www.fisheries.noaa.gov/inport/item/59045

6.4. Process for producing and maintaining metadata
(describe or provide URL of description):
Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access
NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?
Yes

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:
NOAA Office for Coastal Management (NOAA/OCM)

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:
https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=9038
https://coast.noaa.gov/htdata/lidar3_z/geoid18/data/9038

7.3. Data access methods or services offered:
Data is available online for bulk and custom downloads.

7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:
(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

NCEI_CO

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):

Office for Coastal Management - Charleston, SC

8.3. Approximate delay between data collection and submission to an archive facility:

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?
Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

Data is backed up to tape and to cloud storage.

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.